

Roll No. :

Total No. of Questions : 11]

[Total No. of Printed Pages : 3

BPF-2242

M.Sc. (Final) Examination, 2022

BIOTECHNOLOGY

Paper - VIII

(Industrial Biotechnology)

Time : 3 Hours]

[Maximum Marks : 75

Section-A

(Marks : 2 × 10 = 20)

Note :- Answer all *ten* questions (Answer limit **50** words). Each question carries **2** marks.

Section-B

(Marks : 5 × 5 = 25)

Note :- Answer all *five* questions. Each question has internal choice (Answer limit **200** words). Each question carries **5** marks.

Section-C

(Marks : 10 × 3 = 30)

Note :- Answer any *three* questions out of five (Answer limit **500** words). Each question carries **10** marks.

Section-A

1. (i) Which of the following is an organic nitrogen source ?
 - (a) Peptone
 - (b) Soybean meal
 - (c) Casein
 - (d) All of these

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- (ii) What is the role of a draft tube used in an Airlift fermenter ?
- (iii) Give *two* examples of bacterial spp. used for the production of amino acids.
- (iv) Give *two* examples of microbial strains used for the production of butanol.
- (v) Which hormones promote plant root development.
- (vi) Name *two* plants which have been manipulated for virus tolerance.
- (vii) Name any software which is used in plant biotechnology.
- (viii) Give *two* examples of edible vaccines.
- (ix) Which environmental parameters can be controlled in a greenhouse ?
- (x) Name any *two* plants which are commonly produced using greenhouse technology.

Section-B

Unit-I

2. Write a short note on isolation of industrially important microorganisms from soil.

Or

Write a note on growth kinetic of Fed-batch cultivation.

Unit-II

3. Production of gluconic acid by microbial fermentation.

Or

Production of Streptomycin.

Unit-III

4. Write a note on genetic manipulations of plants for developing herbicide tolerant plant varieties.

Or

Write about development of high grain yielding rice crops through genetic manipulations.

Unit-IV

5. Write a note on potential of synthetic seeds in agriculture.

Or

Benefits and risks of molecular farming.

Unit-V

6. Bottlenecks of acclimatization process.

Or

Use of robotics in plants production.

Section-C

7. Give a comprehensive account on Bioreactor : design, operation and control.
8. Write notes on the following :
- (a) Industrial production of steroids
 - (b) Production of single cell protein
9. Write notes on the following :
- (a) Improvement of crop yield and quality by genetic manipulations
 - (b) Development of male sterile plants
10. Give a comprehensive account on applications of Green chemical biotechnology for the production of biomolecules.
11. Give a comprehensive account on the application of plant tissue culture in production of improved varieties of horticulture plant varieties.